

**III. REMARKS/ARGUMENTS****A. Status of the Application**

Claims 1, 6, 8-10, 17, 21, 24, 27, 31-36, 55, 61-65, 67-70, 72-75, 78, 81-84, 199-203, and 214-215 are amended. Claims 37-54, 85-198, 204-213 and 217-220 are cancelled. Claims 221-225 are added. Thus, claims 1-36, 55-84, 199-203, 214-216 and 221-225 are now pending. Reconsideration of this application in light of the following remarks is respectfully requested.

**B. Restriction/Confirmation of Election**

The Examiner has made a restriction requirement under 35 USC § 121 as follows:

- I. Claims 1-42, 55-84, 199-203 and 214-216, drawn to a method of sealing a subterranean zone, classified in class 166, subclass 166.
- II. Claims 43-54, 85-143, 155-198 and 204-213, drawn to a cement composition, classified in class 106, subclass varies.
- III. Claims 144-154 and 217-220, drawn to a foamed cement composition, classified in class 106, subclass varies.

Applicants hereby affirm the provisional election made August 30, 2004 of Group I, Claims 1-42, 55-84, 199-203 and 214-216.

Applicants have cancelled claims 43-54, 85-198, 204-213 and 217-220 as drawn to a non-elected invention, and intend to pursue the subject matter of these claims in a divisional application.

**C. Rejection of Claims 67, 81, 200 and 215 under 35 USC § 112**

Claims 67, 81, 200 and 215 stand rejected under 35 USC § 112, second paragraph. This rejection is respectfully traversed.

Claim 67 depends from claim 65, which depends from claim 55. Thus, claim 67 includes all of the elements of claims 65 and 55. According to the method of claim 55, a cementitious base is blended with an aqueous zeolite suspension. Claim 65 further requires that the aqueous zeolite suspension is mixed with a mixing fluid before it is blended with the cementitious base. Claim 67 further requires that the cementitious base is mixed with a mixing fluid before it is blended with the aqueous zeolite suspension. Applicants respectfully submit that the foregoing

recitations clearly convey that, according to claim 67, the aqueous zeolite suspension is mixed with a mixing fluid, the cementitious base is mixed with a mixing fluid, and then the two are blended. Accordingly, Applicants respectfully request that the rejection of claim 67 under 35 USC § 112, second paragraph be withdrawn.

Claim 81 has been amended to delete the inadvertent inclusion of the word “caused” between the words “stabilized” and “by”. Accordingly, Applicants respectfully request that the rejection of claim 81 under 35 USC § 112, second paragraph be withdrawn.

Claim 200 depends from claim 199, and therefore includes all of the elements of claim 199. The method of claim 199 includes mixing a base blend with zeolite. The base blend comprises at least one cementitious material. Claim 200 further requires that the base blend is 100 weight percent cementitious material, which therefore excludes any components that are not cementitious materials from being a part of the base blend. Applicants respectfully submit that the foregoing recitations clearly convey that, according to claim 200, a base blend that is made up of only cementitious material is mixed with zeolite. Accordingly, Applicants respectfully request that the rejection of claim 200 under 35 USC § 112, second paragraph be withdrawn.

Claim 215 depends from claim 214, and therefore includes all of the elements of claim 214. The method of claim 214 includes mixing a base blend with an aqueous zeolite suspension. The base blend comprises at least one cementitious material, and the zeolite suspension comprises at least about 40 weight percent zeolite. Claim 215 further requires that the base blend is 100 weight percent cementitious material, which therefore excludes any components that are not cementitious materials from being a part of the base blend. Applicants respectfully submit that the foregoing recitations clearly convey that, according to claim 215, a base blend that is made up of only cementitious material is mixed with an aqueous zeolite suspension. Accordingly, Applicants respectfully request that the rejection of claim 215 under 35 USC § 112, second paragraph be withdrawn.

D. Rejection of Claims 1-42, 55-84, 199-203 and 214-216

Claims 1-42, 55-84, 199-203 and 214-216 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 5-19, and 39-57 of co-pending Application No. 10/315,415.

Submitted herewith is a Terminal Disclaimer (and fee payment) with respect to pending U.S. Patent Application No. 10/315,415. Accordingly, Applicants respectfully request that the provisional rejection of claims 1-42, 55-84, 199-203 and 214-216 for obviousness-type double patenting be withdrawn.

E. Rejection of Claims 1, 2, 6, 8, 9, 25-28, 31, 34, 36, 37 and 199-202  
under 35 USC § 102(b)

Claims 1, 2, 6, 8, 9, 25-28, 31, 34, 36, 37 and 199-202 stand rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 3,887,385 to Quist et al. ("Quist"). Claim 37 has been cancelled for reasons unrelated to the present rejection. As applied against the remaining claims, this rejection is respectfully traversed.

Quist discloses a dry light-weight cement composition that includes cement, a bituminous powder and particulate aluminum silicate. (Abstract.) The dry cement composition disclosed by Quist can be mixed with water and allegedly used in cementing boreholes that have been drilled in underground formations. Quist discloses that "[t]he aluminum silicate may be in the crystalline form (zeolites)". (Col. 3, lines 17-18). The amount of aluminum silicate present in the composition disclosed by Quist is quantified by the amount of bitumen in the compositions. In particular, Quist discloses that the dry composition includes aluminum silicate in an amount of less than 0.2 part (by weight) per 1 part (by weight) of the bitumen. Cement is present in an amount of 0.5 – 2 parts. (Col. 3, lines 25-28). Thus, the composition disclosed by Quist contains, at most, 11.7 weight percent aluminum silicate on a dry weight basis.

As provided in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim ...". Thus, Quist et al. must disclose each and every element of claims 1, 2, 6, 8, 9, 25-28, 31, 34, 36 and 199-202 to sustain the present rejection. Applicants respectfully submit that Quist does not disclose or suggest each and every element of independent claims 1 and 199, and that for at least such reason, the rejection under 35 USC § 102(b) over Quist of claims 1 and 199, and the claims dependent thereon, cannot be sustained.

1. Independent claim 1 and dependent claims 2, 6, 8, 9, 25-28, 31, 34 and 36

Claim 1 is drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with a mixing fluid to form a cement composition,

placing the cement composition into the subterranean zone, and allowing the cement composition to set therein. The base blend includes at least one cementitious material and at least about 20 weight percent zeolite.

As noted above, the composition disclosed by Quist contains, at most, 11.7 weight percent aluminum silicate. Quist does not disclose, suggest or motivate a method that includes mixing a base blend with a mixing fluid, wherein the base blend includes at least one cementitious material and at least about 20 weight percent zeolite. Accordingly, Quist fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 1, and Applicants respectfully request that the rejection of claim 1 under 35 USC § 102(b) over Quist be withdrawn.

Claims 2, 6, 8, 9, 25-28, 31, 34 and 36 each depend directly or indirectly from claim 1, and therefore include all of the elements of claim 1. Thus, Applicants submit that the rejection of claims 2, 6, 8, 9, 25-28, 31, 34 and 36 under 35 USC § 102(b) over Quist should be withdrawn for at least the same reasons that apply to claim 1. In addition, Applicants note that Quist fails to disclose, suggest or motivate a method that includes mixing a base blend with zeolite in the amounts recited in claims 6, 8, 31, 34 and 36.

In sum, Quist fails to disclose, suggest or motivate each and every element of claim 1, and the claims dependent thereon. Accordingly, the present rejection of claims 1, 2, 6, 8, 9, 25-28, 31, 34 and 36 under 35 USC § 102(b) over Quist cannot be sustained.

## 2. Independent claim 199 and dependent claims 200-202

Claim 199 is drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend comprising at least one cementitious material with zeolite to form a cement mix, mixing the cement mix with a mixing fluid to form a cement composition, placing the cement composition into the subterranean zone, and allowing the cement composition to set therein. The amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend, and is selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite.

According to the method of claim 199, zeolite is present in the cement composition as an additive, rather than as a base component. Cement composition no. 2 reported in Table 6 of the specification is one example of a composition suitable for use in a method according to claim 199. Cement composition no. 2 reported in Table 6 has a base blend that is 100% class A cement. Zeolite is mixed with this base blend in an amount that is 5% of the total weight of the base blend.

At most, Quist discloses a composition that includes 11.7 weight percent aluminum silicate. Quist does not disclose, suggest or motivate a method that includes mixing a base blend with zeolite in an amount that is at least 5 weight percent of the weight of the base blend. Quist also fails to disclose, suggest or motivate using a zeolite selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite.

Quist discloses that “the aluminum silicate may be in the crystalline form (zeolites)”. At best, this recitation discloses zeolites only as a broad genus. Quist is completely devoid of disclosure, suggestion or motivation regarding the selection of a particular type of zeolite. Disclosure of a genus does not necessarily anticipate a species of the genus. Given the multitude of possibilities for a zeolite, the recitation in Quist that “the aluminum silicate may be in the crystalline form (zeolites)” could not possibly disclose, suggest or motivate the selected zeolites in claim 199.

As illustrated by the foregoing, Quist fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 199 and Applicants respectfully request that the rejection of claim 199 under 35 USC § 102(b) over Quist be withdrawn.

Claims 200-202 each depend directly or indirectly from claim 199, and therefore include all of the elements of claim 199. Thus, Applicants submit that the rejection of claims 200-202 under 35 USC § 102(b) over Quist should be withdrawn for at least the same reasons that apply to claim 199.

F. Rejection of Claims 3, 11 and 12 under 35 U.S.C. § 103(a)

Claims 3, 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Quist. This rejection is respectfully traversed.

Quist discloses a dry light-weight cement composition that includes cement, a bituminous powder and particulate aluminum silicate. (Abstract.) The dry cement composition disclosed by Quist can be mixed with water and allegedly used in cementing boreholes that have been drilled in underground formations. Quist discloses that “[t]he aluminum silicate may be in the crystalline form (zeolites)”. (Col. 3, lines 17-18). The amount of aluminum silicate present in the composition disclosed by Quist is quantified by the amount of bitumen in the compositions. In particular, Quist discloses that the dry composition includes aluminum silicate in an amount of less than 0.2 part (by weight) per 1 part (by weight) of the bitumen. Cement is present in an amount of 0.5 – 2 parts. (Col. 3, lines 25-28). Thus, the composition disclosed by Quist contains, at most, 11.7 weight percent aluminum silicate on a dry weight basis. Quist is devoid of disclosure, suggestion or motivation as to the type of zeolite to use in the composition.

To sustain the present rejection of claims 3, 11 and 12 under 35 U.S.C. § 103(a), a prima facie case of obviousness must be established. MPEP § 2142 provides that a prima facie case of obviousness requires three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. In the present case, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to claims 3, 11 and 12.

Each of claims 3, 11 and 12 depends directly from claim 1, and therefore each includes all of the elements of claim 1. As noted above with respect to the rejection of claim 1 under 35 USC § 102(b) over Quist, Quist does not disclose, suggest or motivate all of the elements of claim 1. Thus, Quist also fails to disclose, suggest or motivate all of the elements of claims 3, 11 and 12 for at least the same reasons that apply to claim 1. Accordingly, at least one of the required elements of the prima facie case has not been satisfied, and therefore the prima facie case must fail.

Quist also fails to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to arrive at the subject matter of claims 3, 11 and 12. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 3, 11 and 12.

With respect to claim 3, Applicants note that Official Notice has been taken for the allegation that the specific zeolites listed in claim 3 are conventional and well-known. Applicants traverse the Official Notice on the grounds that the conventionality and notoriety of the zeolites recited in claim 3 has not been demonstrated to be unquestionable, nor supported by documentary evidence pursuant to the guidelines set forth in MPEP § 2144.03. However, even assuming that the zeolites recited in claim 3 are well-known, it would not be an obvious matter of choice or design to select the zeolites recited in claim 3 for use in cement composition.

As noted above with respect to the rejection of claim 199 under 35 USC § 102(b) over Quist, there are a multitude of zeolites, and Quist is completely devoid of disclosure, suggestion or motivation of the zeolites recited in claim 3. Each zeolite has different properties, some of which may be desirable for certain applications, while others may not. Thus, from the genus of zeolite, the selection of zeolites in claim 3 for use in a cement composition would not be obvious.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Quist has not and cannot be established with respect to claims 3, 11 and 12. Accordingly, Applicants respectfully request that the rejection of claims 3, 11 and 12 under 35 USC § 103(a) over Quist be withdrawn.

G. Rejection of Claims 10, 13-21, 29, 30, 38-41, 74-76, 80-83, 203, 214 and 215 under 35 USC § 103(a)

Claims 10, 13-21, 29, 30, 38-41, 74-76, 80-83, 203, 214 and 215 stand rejected under 35 USC § 103(a) as being unpatentable over Quist in view of U.S. Patent No. 6,145,591 to Boncan et al. ("Boncan"). Claims 38-41 have been cancelled for reasons unrelated to the present rejection. As applied against the remaining claims, this rejection is respectfully traversed.

Quist discloses a dry light-weight cement composition that includes cement, a bituminous powder and particulate aluminum silicate. (Abstract.) The dry cement composition disclosed by Quist can be mixed with water and allegedly used in cementing boreholes that have been drilled in underground formations. Quist discloses that “[t]he aluminum silicate may be in the crystalline form (zeolites)”. (Col. 3, lines 17-18). The amount of aluminum silicate present in the composition disclosed by Quist is quantified by the amount of bitumen in the compositions. In particular, Quist discloses that the dry composition includes aluminum silicate in an amount of less than 0.2 part (by weight) per 1 part (by weight) of the bitumen. Cement is present in an amount of 0.5 – 2 parts. (Col. 3, lines 25-28). Thus, the composition disclosed by Quist contains, at most, 11.7 weight percent aluminum silicate on a dry weight basis.

Boncan discloses aluminum silicate-containing cement slurries for cementing wellbores in deepwater and cold environments. (Abstract.) The slurries may also include additives such as quick-setting gypsum, polyvinyl alcohol-based anti-fluid flow additives and accelerators. The slurries may also be foamed. (Col. 2, line 66 – Col. 3, line 5). The aluminum silicates used in the compositions described by Boncan are kaolin, metakaolin, halloysite, dickite or nacrite. (Col. 8, lines 65 – col. 9, lines 1-5). Kaolin, metakaolin, halloysite, dickite and nacrite are clays. (See attached definitions of aluminum silicate, kaolin, halloysite, dickite, and discussion of the clay mineral group.) Thus, recitation of “aluminum silicate” in Boncan does not refer to zeolite.

To sustain the present rejection of claims 10, 13-21, 29, 30, 74-76, 80-83, 203, 214 and 215 under 35 USC § 103(a) over Quist in view of Boncan, a prima facie case of obviousness must be established. In the present case, however, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to any of these claims.

1. Claims 10, 13-21, 29 and 30

Each of claims 10, 13-21, 29 and 30 depends directly or indirectly from claim 1, and therefore each includes all of the elements of claim 1. Each of claims 10, 13-21, 29 and 30 specifies a particular additive for the composition used in the method of claim 1. Thus, each of claims 10, 13-21, 29 and 30 describes a method that includes mixing a base blend with a mixing fluid to form a cement composition. The base blend includes at least one cementitious material



and at least about 20 weight percent zeolite. The composition further includes the particular additive(s) recited in claims 10, 13-21, 29 and 30.

As noted above with respect to the rejection of claim 1 under 35 USC § 102(b) over Quist, Quist does not disclose, suggest or motivate a method that includes mixing a base blend with a mixing fluid, wherein the base blend includes at least one cementitious material and at least about 20 weight percent zeolite. Quist also fails to disclose, suggest or motivate including additives such as those recited in claims 10, 13-21, 29 and 30 in a cement composition.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Quist. As discussed above, Boncan discloses cement slurries that include certain aluminum silicate clays, namely, kaolin, metakaolin, halloysite, dickite and nacrite. Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes the use of flow and accelerating additives, there is no disclosure, suggestion, motivation, or even an expectation, that these additives would work in the presence of zeolite.

Thus, as neither Quist nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of each of claims 10, 13-21, 29 and 30, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Quist and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claims 10, 13-21, 29 and 30. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 10, 13-21, 29 and 30.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Quist and in view of Boncan has not and cannot be established with respect to claims 10, 13-21, 29, and 30.

Accordingly, Applicants respectfully request that the rejection of claims 10, 13-21, 29 and 30 under 35 USC § 103(a) over Quist and Boncan be withdrawn.

2. Claims 74-76 and 80-83

Claim 74 is an independent claim drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with a mixing fluid to form an unfoamed cement composition, foaming the unfoamed cement composition to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. The base blend comprises at least one cementitious material and at least about 20 weight percent zeolite.

As noted above, the composition disclosed by Quist contains, at most, 11.7 weight percent aluminum silicate. Quist does not disclose, suggest or motivate a method that includes mixing a base blend with a mixing fluid, wherein the base blend includes at least one cementitious material and at least about 20 weight percent zeolite. Quist also fails to disclose, suggest or motivate foaming a cement composition comprised of cementitious material and zeolite, placing the foamed cement composition in a wellbore, and allowing the foamed composition to set. Thus, Quist does not disclose, suggest or motivate all of the elements of claim 74, and therefore Quist cannot satisfy all of the elements of a prima facie case of obviousness against claim 74.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Quist. As discussed above, Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes foamed cement slurries, there is no disclosure, suggestion, motivation, or even an expectation, that slurries containing zeolite could be foamed.

Thus, as neither Quist nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claim 74, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Quist and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claim 74. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claim 74.

Claims 75, 76 and 80-83 each depend directly or indirectly from claim 74, and therefore include at least the foregoing elements. Thus, Applicants submit that Quist and Boncan cannot support a prima facie case of obviousness against claims 75, 76 and 80-83 for at least the same reasons that apply to claim 74. In addition, Applicants note that neither Quist nor Boncan, alone or in combination, discloses, suggests or motivates the additional subject matter recited in claims 75, 76 and 80-83.

In view of the foregoing, Applicants respectfully request that the rejection of claims 74-76 and 80-83 under 35 USC § 103(a) over Quist and Boncan be withdrawn.

### 3. Claim 203

Claim 203 depends directly from claim 199, and therefore includes all of the elements of claim 199. Thus, claim 203 describes a method that includes mixing a base blend, zeolite and a dispersant, and mixing that mixture with a mixing fluid to form a cement composition, where the amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend, and the zeolite is selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite.

As noted above with respect to the rejection of claim 199 under 35 USC § 102(b) over Quist, Quist does not disclose, suggest or motivate a method that includes mixing a base blend with zeolite in an amount that is at least 5 weight percent of the weight of the base blend. Quist also fails to disclose, suggest or motivate using a zeolite selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite. Quist also fails to disclose, suggest or motivate mixing a base blend, zeolite and a dispersant as recited in claim 203.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Quist. As discussed above, Boncan discloses cement slurries that include certain aluminum silicate clays, namely, kaolin, metakaolin, halloysite, dickite and nacrite. Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes the use of flow and accelerating additives, there is no disclosure,

suggestion or motivation of a dispersant, and further, there is no disclosure, suggestion or motivation, or even an expectation, that a dispersant would work in the presence of zeolite.

Thus, as neither Quist nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claim 203, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Quist and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claim 203. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claim 203.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Quist in view of Boncan has not and cannot be established with respect to claim 203. Accordingly, Applicants respectfully request that the rejection of claim 203 under 35 USC § 103(a) over Quist and Boncan be withdrawn.

#### 4. Claims 214 and 215

Claim 214 is an independent claim drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with an aqueous zeolite suspension and a mixing fluid to form an unfoamed cement composition, foaming the unfoamed cement composition to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. The base blend comprises at least one cementitious material and the aqueous zeolite suspension comprises at least about 40 weight percent zeolite.

As noted above, Quist describes a dry mix for a light-weight cement that includes cement, bitumen and aluminum silicate. The aluminum silicate described in Quist is present in the dry mix, and is not present as an aqueous suspension that is mixed with a base blend. Moreover, to the extent that the aluminum silicate recited in Quist could even be considered as a zeolite, the dry mix described in Quist contains, at most, 11.7 weight percent aluminum silicate.

Quist is completely devoid of disclosure, suggestion or motivation for a method that includes mixing a base blend with an aqueous zeolite suspension and a mixing fluid, foaming the mixture to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. Further, Quist is completely devoid of disclosure, suggestion or motivation of a method wherein an aqueous zeolite suspension comprises at least about 40 weight percent zeolite.

Thus, Quist does not disclose, suggest or motivate the subject matter of claim 214, and therefore Quist cannot satisfy all of the elements of a prima facie case of obviousness against claim 214.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Quist. As discussed above, Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Moreover, Boncan is completely devoid of disclosure, suggestion or motivation of a method that includes mixing a base blend with an aqueous zeolite suspension. Further still, although Boncan describes foamed cement slurries, there is no disclosure, suggestion, motivation, or even an expectation, that slurries containing zeolite could be foamed.

Thus, as neither Quist nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claim 214, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Quist and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claim 214. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claim 214.

Claim 215 depends from claim 214, and therefore includes at least the foregoing elements. Thus, Applicants submit that Quist and Boncan cannot support a prima facie case of obviousness against claim 215 for at least the same reasons that apply to claim 214. In addition, Applicants note that neither Quist nor Boncan, alone or in combination, discloses, suggests or motivates the additional subject matter recited in claim 215.

In sum, Applicants submit that a prima facie case of obviousness over Quist in view of Boncan has not and cannot be established with respect to claims 214 and 215. Accordingly, Applicants respectfully request that the rejection of claims 214 and 215 under 35 USC § 103(a) over Quist and Boncan be withdrawn.

H. Rejection of Claims 1, 2, 9, 27, 28, 31, 37, 55, 56, 58, 60-62, 64, 199 and 200 under 35 USC § 102(e)

Claims 1, 2, 9, 27, 28, 31, 37, 55, 56, 58, 60-62, 64, 199 and 200 stand rejected under 35 USC § 102(e) over U.S. Publication No. 2004/0040475 to Roij (“Roij”). Claim 37 has been cancelled for reasons unrelated to the present rejection. As applied against the remaining claims, this rejection is respectfully traversed.

Roij discloses a cement additive that includes: (a) certain alkali metal and alkaline earth metal chlorides; (b) aluminum chloride; and (c) at least one of silica or zeolite. (Paras. [0006] – [0012]). In certain examples, zeolite may be included in the additive in an amount of 1 to 10% of the total weight of the additive (that is the total weight of (a), (b) and (c)). (Para. [0013]). The cement additive is mixed with cement, and the resulting composition can be used for grouting. (Abstract.) When used for grouting, the composition is prepared by mixing 50-100 g. of cement with 2 g. of the additive. (Para. [0070]). Thus, in a composition made up of cement and the additive, the additive makes up about 2 to 4% of the total weight of the composition. If zeolite is present in the additive, it is present in an amount of 1 to 10% of the total weight of the additive. Thus, in a composition made up of cement and the additive, zeolite makes up, at most, 0.4% of the total weight of the composition. When the amount of zeolite is expressed as a percentage based on the weight of cement, then the zeolite is also present in an amount of at most, 0.4% of the weight of the cement.

The present Office Action considers grouting as described by Roij to be “inherently or necessarily characterized by cementing a ... wellbore, which would penetrate [a] subterranean zone.” This interpretation of the disclosure of Roij is respectfully traversed.

“Grouting” is commonly known to refer to the filling of cracks and crevices in masonry, between tiles, and in walls and ceilings. Those of ordinary skill in the art of conducting cementing operations in wellbores penetrating subterranean zones would not refer to such

operations as “grouting” operations. Moreover, Roij is completely devoid of disclosure, suggestion or motivation that the common definition of “grouting” should be expanded to include cementing in a wellbore penetrating a subterranean zone.

However, even if “grouting” as described by Roij could be considered to disclose, suggest or motivate sealing a wellbore penetrating a subterranean zone, Roij does not disclose, suggest or motivate the subject matter of any of claims 1, 2, 9, 27, 28, 31, 55, 56, 58, 60-62, 64, 199 and 200. As provided in MPEP § 2131, “[t]o anticipate a claim, the reference must teach every element of the claim ...”. Thus, Roij must disclose each and every element of claims 1, 2, 9, 27, 28, 31, 55, 56, 58, 60-62, 64, 199 and 200 to sustain the present rejection. Applicants respectfully submit that Roij does not disclose or suggest each and every element of independent claims 1, 55 and 199, and that for at least such reason, the rejection under 35 USC § 102(e) over Roij of claims 1, 55 and 199, and the claims dependent thereon, cannot be sustained.

1. Independent claim 1 and dependent claims 2, 9, 27, 28 and 31

Claim 1 is drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with a mixing fluid to form a cement composition, placing the cement composition into the subterranean zone; and allowing the cement composition to set therein. The base blend includes at least one cementitious material and at least about 20 weight percent zeolite.

As noted above, a cement composition that includes the additive described by Roij will contain, at most, 0.4 weight percent of zeolite. Roij does not disclose, suggest or motivate a method that includes preparing a cement composition by mixing a base blend with a mixing fluid, wherein the base blend includes at least about 20 weight percent zeolite. Moreover, Roij does not disclose, suggest or motivate a method for sealing a subterranean zone penetrated by a wellbore at all.

Accordingly, Roij fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 1, and Applicants respectfully request that the rejection of claim 1 under 35 USC § 102(e) over Roij be withdrawn.

Claims 2, 9, 27, 28 and 31 each depend directly or indirectly from claim 1, and therefore include all of the elements of claim 1. Thus, Applicants submit that the rejection of claims 2, 9,

27, 28 and 31 under 35 USC § 102(e) over Roij should be withdrawn for at least the same reasons that apply to claim 1. In addition, Applicants note that Roij fails to disclose, suggest or motivate a method that includes the additional subject matter of claims 2, 9, 27, 28 and 31.

In sum, Roij fails to disclose, suggest or motivate each and every element of claim 1, and the claims dependent thereon. Accordingly, the present rejection of claims 1, 2, 9, 27, 28 and 31 under 35 USC § 102(e) over Roij cannot be sustained.

2. Independent claim 55 and dependent claims 56, 58, 60-62 and 64

Claim 55 is drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes blending a cementitious base with an aqueous zeolite suspension to form a cement composition, placing the cement composition into the subterranean zone, and allowing the cement composition to set therein. The inclusion of the aqueous zeolite suspension in the cement composition causes the cement composition to have a zeolite content of at least about 30 weight percent of the weight of the cementitious base.

As noted above, a cement composition that includes the additive described by Roij will contain zeolite in an amount that is, at most, 0.4% of the weight of the cement in the composition. Thus, to the extent that the cement in the composition described Roij can be called a “cementitious base”, Roij does not disclose, suggest or motivate a method that includes mixing a cementitious base with an aqueous zeolite suspension to form a cement composition, wherein the inclusion of the aqueous zeolite suspension in the cement composition causes the cement composition to have a zeolite content of at least about 30 weight percent of the weight of the cementitious base. Moreover, Roij does not disclose, suggest or motivate a method for sealing a subterranean zone penetrated by a wellbore at all.

Accordingly, Roij fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 55, and Applicants respectfully request that the rejection of claim 55 under 35 USC § 102(e) over Roij be withdrawn.

Claims 56, 58, 60-62 and 64 each depend directly or indirectly from claim 55, and therefore include all of the elements of claim 55. Thus, Applicants submit that the rejection of claims 56, 58, 60-62 and 64 under 35 USC § 102(e) over Roij should be withdrawn for at least



the same reasons that apply to claim 55. In addition, Applicants note that Roij fails to disclose, suggest or motivate a method that includes the additional subject matter of 56, 58, 60-62 and 64.

In view of the foregoing, Applicants respectfully request that the present rejection of claims 55, 56, 58, 60-62 and 64 under 35 USC § 102(e) over Roij be withdrawn.

3. Independent claim 199 and dependent claim 200

Claim 199 is drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend comprising at least one cementitious material with zeolite to form a cement mix, mixing the cement mix with a mixing fluid to form a cement composition, placing the cement composition into the subterranean zone, and allowing the cement composition to set therein. The amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend, and is selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite.

According to the method of claim 199, zeolite is present in the cement composition as an additive, rather than as a base component. Cement composition no. 2 reported in Table 6 of the specification is one example of a composition suitable for use in a method according to claim 199. Cement composition no. 2 reported in Table 6 has a base blend that is 100% class A cement. Zeolite is mixed with this base blend in an amount that is 5% of the total weight of the base blend.

As noted above, a cement composition that includes the additive described by Roij will contain zeolite in an amount that is, at most, 0.4% of the weight of the cement in the composition. Thus, to the extent that the cement in the composition described Roij can be called a "base blend", Roij does not disclose, suggest or motivate a method that includes mixing a base blend comprising at least one cementitious material with zeolite to form a cement mix, wherein the amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend.

Furthermore, Roij is completely devoid of disclosure, suggestion or motivation regarding the selection of the zeolites recited in claim 199. Moreover, Roij does not disclose, suggest or motivate a method for sealing a subterranean zone penetrated by a wellbore at all.

Accordingly, Roij fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 199, and Applicants respectfully request that the rejection of claim 199 under 35 USC § 102(e) over Roij be withdrawn.

As illustrated by the foregoing, Roij fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 199 and Applicants respectfully request that the rejection of claim 199 under 35 USC § 102(e) over Roij be withdrawn.

Claim 200 depends from claim 199, and therefore includes all of the elements of claim 199. Thus, Applicants submit that the rejection of claim 200 under 35 USC § 102(e) over Roij should be withdrawn for at least the same reasons that apply to claim 199.

In sum, Roij fails to disclose, suggest or motivate each and every element of claim 199, and the claims dependent thereon. Accordingly, the present rejection of claims 199-200 under 35 USC § 102(e) over Roij cannot be sustained.

I. Rejection of Claims 3, 8, 11, 12, 25, 26, 36, 57 and 65-68 under 35 USC § 103(a)

Claims 3, 8, 11, 12, 25, 26, 36, 57 and 65-68 stand rejected under 35 USC § 103(a) as being unpatentable over Roij. This rejection is respectfully traversed.

Roij discloses a cement additive that includes: (a) certain alkali metal and alkaline earth metal chlorides; (b) aluminum chloride; and (c) at least one of silica or zeolite. (Paras. [0006] – [0012]). In certain examples, zeolite may be included in the additive in an amount of 1 to 10% of the total weight of the additive (that is the total weight of (a), (b) and (c)). (Para. [0013]). The cement additive is mixed with cement, and the resulting composition can be used for grouting. (Abstract.) When used for grouting, the composition is prepared by mixing 50-100 g of cement with 2 g of the additive. (Para. [0070]). Thus, in a composition made up of cement and the additive, the additive makes up about 2 to 4% of the total weight of the composition. If zeolite is present in the additive, it is present in an amount of 1 to 10% of the total weight of the additive. Thus, in a composition made up of cement and the additive, zeolite makes up, at most, 0.4% of the total weight of the composition. When the amount of zeolite is expressed as a percentage

based on the weight of cement, then the zeolite is also present in an amount of at most, 0.4% of the weight of the cement.

“Grouting” is commonly known to refer to the filling of cracks and crevices in masonry, between tiles, and in walls and ceilings. Those of ordinary skill in the art of conducting cementing operations in wellbores penetrating subterranean zones would not refer to such operations as “grouting” operations. Moreover, Roij is completely devoid of disclosure, suggestion or motivation that the common definition of “grouting” should be expanded to include cementing in a wellbore penetrating a subterranean zone. However, even if “grouting” as described by Roij could be considered to disclose, suggest or motivate sealing a wellbore penetrating a subterranean zone, Roij does not disclose, suggest or motivate the subject matter of any of claims 3, 8, 11, 12, 25, 26, 36, 57 and 65-68.

To sustain the present rejection of claims 3, 8, 11, 12, 25, 26, 36, 57 and 65-68 under 35 USC § 103(a), a prima facie case of obviousness must be established. MPEP § 2142 provides that a prima facie case of obviousness requires three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. In the present case, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to claims 3, 8, 11, 12, 25, 26, 36, 57 and 65-68.

1. Claims 3, 8, 11, 12, 25, 26 and 36

Each of claims 8, 11, 12, 25, 26 and 36 depends directly or indirectly from claim 1, and therefore each includes all of the elements of claim 1. As noted above with respect to the rejection of claim 1 under 35 USC § 102(e) over Roij, Roij is completely devoid of disclosure, suggestion or motivation of a method for sealing a subterranean zone penetrated by a wellbore. Furthermore, Roij does not disclose, suggest or motivate all of the elements of claim 1. Thus, Roij fails to disclose, suggest or motivate all of the elements of claims 8, 11, 12, 25, 26 and 36 for at least the same reasons that apply to claim 1. Accordingly, at least one of the required elements of the prima facie case has not been satisfied, and therefore the prima facie case must fail.

Roijs also fails to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to arrive at the subject matter of claims 8, 11, 12, 25, 26 and 36. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 8, 11, 12, 25, 26 and 36.

With respect to claim 3, Applicants note that Official Notice has been taken for the allegation that the specific zeolites listed in claim 3 are conventional and well-known. Applicants traverse the Official Notice on the grounds that the conventionality and notoriety of the zeolites recited in claim 3 has not been demonstrated to be unquestionable, nor supported by documentary evidence pursuant to the guidelines set forth in MPEP § 2144.03. However, even assuming that the zeolites recited in claim 3 are well-known, it would not be an obvious matter of choice or design to select the zeolites recited in claim 3 for use in a cement composition. Furthermore, Roijs fails to disclose, suggest or motivate the additional subject matter recited in claims 8, 11, 12, 25, 26 and 36.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Roijs has not and cannot be established with respect to claims 8, 11, 12, 25, 26 and 36. Accordingly, Applicants respectfully request that the rejection of claims 8, 11, 12, 25, 26 and 36 under 35 USC § 103(a) over Roijs be withdrawn.

## 2. Claims 57 and 65-68

Each of claims 57 and 65-68 depends directly or indirectly from claim 55, and therefore each includes all of the elements of claim 55. As noted above with respect to the rejection of claim 55 under 35 USC § 102(e) over Roijs, Roijs is completely devoid of disclosure, suggestion or motivation of a method for sealing a subterranean zone penetrated by a wellbore. Thus, one of ordinary skill in the art would not consider Roijs as disclosing wellbore cementing operations. Furthermore, Roijs does not disclose, suggest or motivate all of the elements of claim 55. Thus, Roijs fails to disclose, suggest or motivate all of the elements of claims 57 and 65-68 for at least the same reasons that apply to claim 55. Accordingly, at least one of the required elements of the prima facie case has not been satisfied, and therefore the prima facie case must fail.

Roij also fails to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to arrive at the subject matter of claims 57 and 65-68. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 57 and 65-68.

With respect to claim 57, Applicants note that Official Notice has been taken for the allegation that the specific zeolites listed in claim 57 are conventional and well-known. Applicants traverse the Official Notice on the grounds that the conventionality and notoriety of the zeolites recited in claim 57 has not been demonstrated to be unquestionable, nor supported by documentary evidence pursuant to the guidelines set forth in MPEP § 2144.03. However, even assuming that the zeolites recited in claim 57 are well-known, it would not be an obvious matter of choice or design to select the zeolites recited in claim 57 for use in a cement composition. Furthermore, Roij fails to disclose, suggest or motivate the additional subject matter recited in claims 65-68.

In view of the foregoing, Applicants respectfully request that the present rejection of claims 57 and 65-68 under 35 USC § 103(a) over Roij be withdrawn.

J. Rejection of Claims 10, 13-21, 29, 30, 38-41, 63, 69-73, 74-76, 78, 80-83, 202, 203 and 214-216 under 35 USC § 103(a)

Claims 10, 13-21, 29, 30, 38-41, 63, 69-73, 74-76, 78, 80-83, 202, 203 and 214-216 stand rejected under 35 USC § 103(a) as being unpatentable over Roij in view of Boncan. Claims 38-41 have been cancelled for reasons unrelated to the present rejection. As applied against the remaining claims, this rejection is respectfully traversed.

Roij discloses a cement additive that includes: (a) certain alkali metal and alkaline earth metal chlorides; (b) aluminum chloride; and (c) at least one of silica or zeolite. (Paras. [0006] – [0012]). In certain examples, zeolite may be included in the additive in an amount of 1 to 10% of the total weight of the additive (that is the total weight of (a), (b) and (c)). (Para. [0013]). The cement additive is mixed with cement, and the resulting composition can be used for grouting. (Abstract.) When used for grouting, the composition is prepared by mixing 50-100 g of cement with 2 g of the additive. (Para. [0070]). Thus, in a composition made up of cement and the

additive, the additive makes up about 2 to 4% of the total weight of the composition. If zeolite is present in the additive, it is present in an amount of 1 to 10% of the total weight of the additive. Thus, in a composition made up of cement and the additive, zeolite makes up, at most, 0.4% of the total weight of the composition. When the amount of zeolite is expressed as a percentage based on the weight of cement, then the zeolite is also present in an amount of, at most, 0.4% of the weight of the cement.

The present Office Action appears to consider grouting as described by Roij the equivalent of wellbore cementing. This interpretation of the disclosure of Roij is respectfully traversed. "Grouting" is commonly known to refer to the filling of cracks and crevices in masonry, between tiles, and in walls and ceilings. Those of ordinary skill in the art of conducting cementing operations in wellbores penetrating subterranean zones would not refer to such operations as "grouting" operations. Moreover, Roij is completely devoid of disclosure, suggestion or motivation that the common definition of "grouting" should be expanded to include cementing in a wellbore penetrating a subterranean zone. However, even if "grouting" as described by Roij could be considered to disclose, suggest or motivate sealing a wellbore penetrating a subterranean zone, Roij does not disclose, suggest or motivate the subject matter of any of claims 10, 13-21, 29, 30, 63, 69-73, 74-76, 78, 80-83, 202, 203 and 214-216.

Boncan discloses aluminum silicate-containing cement slurries for cementing wellbores in deepwater and cold environments. (Abstract.) The slurries may also include additives such as quick-setting gypsum, polyvinyl alcohol-based anti-fluid flow additives and accelerators. The slurries may also be foamed. (Col. 2, line 66 – Col. 3, line 5). The aluminum silicates used in the compositions described by Boncan are kaolin, metakaolin, halloysite, dickite or nacrite. (Col. 8, lines 65 – col. 9, lines 1-5). Kaolin, metakaolin, halloysite, dickite and nacrite are clays. (See attached definitions of aluminum silicate, kaolin, halloysite, dickite, and discussion of the clay mineral group.) Thus, recitation of "aluminum silicate" in Boncan does not refer to zeolite.

To sustain the present rejection of claims 10, 13-21, 29, 30, 63, 69-73, 74-76, 78, 80-83, 202, 203 and 214-216 under 35 USC § 103(a) over Roij in view of Boncan, a prima facie case of obviousness must be established. In the present case, however, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to any of these claims.

1. Claims 10, 13-21, 29 and 30

Each of claims 10, 13-21, 29 and 30 depends directly or indirectly from claim 1, and therefore each includes all of the elements of claim 1. Each of claims 10, 13-21, 29 and 30 specifies a particular additive for the composition used in the method of claim 1. Thus, each of claims 10, 13-21, 29 and 30 describes a method that includes mixing a base blend with a mixing fluid to form a cement composition. The base blend includes at least one cementitious material and at least about 20 weight percent zeolite. The composition further includes the particular additive(s) recited in claims 10, 13-21, 29 and 30.

As noted above with respect to the rejection of claim 1 under 35 USC § 102(e) over Roij, Roij does not disclose, suggest or motivate a method for sealing a subterranean zone penetrated by a wellbore at all. Moreover, Roij does not disclose, suggest or motivate a method that includes mixing a base blend with a mixing fluid, wherein the base blend includes at least one cementitious material and at least about 20 weight percent zeolite. Roij also fails to disclose, suggest or motivate including additives such as those recited in claims 10, 13-21, 29 and 30 in a cement composition.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roij. As discussed above, Boncan discloses cement slurries that include certain aluminum silicate clays, namely, kaolin, metakaolin, halloysite, dickite and nacrite. Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes the use of flow and accelerating additives, there is no disclosure, suggestion, motivation, or even an expectation, that these additives would work in the presence of zeolite.

Thus, as neither Roij nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of each of claims 10, 13-21, 29 and 30, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roij and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claims 10, 13-21, 29 and 30. Further, even if such modification

were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 10, 13-21, 29 and 30.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Roij in view of Boncan has not and cannot be established with respect to claims 10, 13-21, 29, and 30. Accordingly, Applicants respectfully request that the rejection of claims 10, 13-21, 29 and 30 under 35 USC § 103(a) over Roij and Boncan be withdrawn.

2. Claims 63 and 69-73

Each of claims 63 and 69-73 depends directly or indirectly from claim 55, and therefore each includes all of the elements of claim 55. As noted above with respect to the rejection of claim 55 under 35 USC § 102(e) over Roij, Roij is completely devoid of disclosure, suggestion or motivation of a method for sealing a subterranean zone penetrated by a wellbore. Thus, one of ordinary skill in the art would not consider Roij as disclosing wellbore cementing operations. Furthermore, Roij does not disclose, suggest or motivate all of the elements of claim 55. Thus, Roij fails to disclose, suggest or motivate all of the elements of claims 63 and 69-73 for at least the same reasons that apply to claim 55. Roij also fails to disclose, suggest or motivate the additional subject matter of claims 63 and 69-73.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roij. As discussed above, Boncan discloses cement slurries that include certain aluminum silicate clays, namely, kaolin, metakaolin, halloysite, dickite and nacrite. Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition.

Thus, as neither Roij nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of each of claims 63 and 69-73, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roij and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claims 63 and 69-73. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 63 and 69-73.



In view of the foregoing, Applicants submit that a prima facie case of obviousness over Roij in view of Boncan has not and cannot be established with respect to claims 63 and 69-73. Accordingly, Applicants respectfully request that the rejection of claims 63 and 69-73 under 35 USC § 103(a) over Roij and Boncan be withdrawn.

3. Claims 74-76, 78 and 80-83

Claim 74 is an independent claim drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with a mixing fluid to form an unfoamed cement composition, foaming the unfoamed cement composition to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. The base blend comprises at least one cementitious material and at least about 20 weight percent zeolite.

As noted above, Roij does not disclose, suggest or motivate a method for sealing a subterranean zone penetrated by a wellbore at all. Further, a cement composition that includes the additive described by Roij will contain, at most, 0.4 weight percent of zeolite. Roij does not disclose, suggest or motivate a method that includes preparing a cement composition by mixing a base blend with a mixing fluid, foaming the cement composition and setting of the cement composition in a wellbore, wherein the base blend of the composition includes at least about 20 weight percent zeolite,

Thus, Roij does not disclose, suggest or motivate all of the elements of claim 74, and therefore Roij cannot satisfy all of the elements of a prima facie case of obviousness against claim 74.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roij. As discussed above, Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes foamed cement slurries, there is no disclosure, suggestion, motivation, or even an expectation, that slurries containing zeolite could be foamed.

Thus, as neither Roij nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claim 74, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roijs and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claim 74. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claim 74.

Claims 75, 76, 78 and 80-83 each depend directly or indirectly from claim 74, and therefore each includes at least the foregoing elements. Thus, Applicants submit that Roijs and Boncan cannot support a prima facie case of obviousness against claims 75, 76, 78 and 80-83 for at least the same reasons that apply to claim 74. In addition, Applicants note that neither Roijs nor Boncan, alone or in combination, discloses, suggests or motivates the additional subject matter recited in claims 75, 76, 78 and 80-83.

In view of the foregoing, Applicants respectfully request that the rejection of claims 74-76, 78 and 80-83 under 35 USC § 103(a) over Roijs and Boncan be withdrawn.

### 3. Claims 202 and 203

Claims 202 and 203 each depend directly from claim 199, and therefore each includes all of the elements of claim 199. Claim 199 describes a method that includes mixing a base blend, zeolite and a dispersant, and mixing that mixture with a mixing fluid to form a cement composition, where the amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend, and the zeolite is selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite. Claims 202 and 203 further describe mixing a lightweight additive and a dispersant, respectively, with the base blend.

As noted above with respect to the rejection of claim 199 under 35 USC § 102(e) over Roijs, Roijs does not disclose, suggest or motivate a method for sealing a subterranean zone penetrated by a wellbore. Even if Roijs disclosed such a method, a cement composition that includes the additive described by Roijs will contain zeolite in an amount that is, at most, 0.4% of the weight of the cement in the composition. Thus, to the extent that the cement in the

composition described by Roij can be called a “base blend”, Roij does not disclose, suggest or motivate a method that includes mixing a base blend comprising at least one cementitious material with zeolite to form a cement mix, wherein the amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend. Furthermore, Roij is completely devoid of disclosure, suggestion or motivation regarding the selection of the zeolites recited in claim 199.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roij. As discussed above, Boncan discloses cement slurries that include certain aluminum silicate clays, namely, kaolin, metakaolin, halloysite, dickite and nacrite. Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, there is no disclosure, suggestion or motivation in Boncan to provide a cement composition that includes zeolite and a dispersant or a lightweight additive.

Thus, as neither Roij nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claims 202 and 203, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roij and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claims 202 and 203. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 202 and 203.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Roij in view of Boncan has not and cannot be established with respect to claims 202 and 203. Accordingly, Applicants respectfully request that the rejection of claims 202 and 203 under 35 USC § 103(a) over Roij and Boncan be withdrawn.

#### 4. Claims 214-216

Claim 214 is an independent claim drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with an aqueous zeolite suspension and a mixing fluid to form an unfoamed cement composition, foaming the unfoamed

cement composition to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. The base blend comprises at least one cementitious material and the aqueous zeolite suspension comprises at least about 40 weight percent zeolite.

Roij discloses a cement additive that includes: (a) certain alkali metal and alkaline earth metal chlorides; (b) aluminum chloride; and (c) at least one of silica or zeolite. (Paras. [0006] – [0012]). In certain examples, zeolite may be included in the additive in an amount of 1 to 10% of the total weight of the additive (that is the total weight of (a), (b) and (c)). (Para. [0013]). The cement additive is mixed with cement, and the resulting composition can be used for grouting. (Abstract.) When used for grouting, the composition is prepared by mixing 50-100 g of cement with 2 g of the additive. (Para. [0070]). Thus, in a composition made up of cement and the additive, the additive makes up about 2 to 4% of the total weight of the composition. If zeolite is present in the additive, it is present in an amount of 1 to 10% of the total weight of the additive. Thus, in a composition made up of cement and the additive, zeolite makes up, at most, 0.4% of the total weight of the composition. When the amount of zeolite is expressed as a percentage based on the weight of cement, then the zeolite is also present in an amount of, at most, 0.4% of the weight of the cement.

The present Office Action appears to consider grouting as described by Roij the equivalent of wellbore cementing. This interpretation of the disclosure of Roij is respectfully traversed. “Grouting” is commonly known to refer to the filling of cracks and crevices in masonry, between tiles, and in walls and ceilings. Those of ordinary skill in the art of conducting cementing operations in wellbores penetrating subterranean zones would not refer to such operations as “grouting” operations. Moreover, Roij is completely devoid of disclosure, suggestion or motivation that the common definition of “grouting” should be expanded to include cementing in a wellbore penetrating a subterranean zone. However, even if “grouting” as described by Roij could be considered to disclose, suggest or motivate sealing a wellbore penetrating a subterranean zone, Roij does not disclose, suggest or motivate the subject matter of claims 214-216.

Roij is completely devoid of disclosure, suggestion or motivation for a method that includes mixing a base blend with an aqueous zeolite suspension and a mixing fluid, foaming the

mixture to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. Further, Roij is completely devoid of disclosure, suggestion or motivation for a method wherein an aqueous zeolite suspension comprises at least about 40 weight percent zeolite.

Thus, Roij does not disclose, suggest or motivate the subject matter of claim 214, and therefore Roij cannot satisfy all of the elements of a prima facie case of obviousness against claim 214.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roij. As discussed above, Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Moreover, Boncan is completely devoid of disclosure, suggestion or motivation of a method that includes mixing a base blend with an aqueous zeolite suspension. Further still, although Boncan describes foamed cement slurries, there is no disclosure, suggestion, motivation, or even an expectation, that slurries containing zeolite could be foamed.

Thus, as neither Roij nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claim 214, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roij and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claim 214. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claim 214.

Claims 215 and 216 each depend from claim 214, and therefore each includes at least the foregoing elements. Thus, Applicants submit that Roij and Boncan cannot support a prima facie case of obviousness against claims 215 and 216 for at least the same reasons that apply to claim 214. In addition, Applicants note that neither Roij nor Boncan, alone or in combination, discloses, suggests or motivates the additional subject matter recited in claims 215 and 216.

In sum, Applicants submit that a prima facie case of obviousness over Roij in view of Boncan has not and cannot be established with respect to claims 214-216. Accordingly,

Applicants respectfully request that the rejection of claims 214-216 under 35 USC § 103(a) over Roij and Boncan be withdrawn.

K. Rejection of Claims 1, 2, 8, 9, 22, 23, 27, 28, 31, 36, 37, 42, 59, 74, 76, 81, 82, 199, 200, 202, and 214-216 under 35 USC § 102(b)

Claims 1, 2, 8, 9, 22, 23, 27, 28, 31, 36, 37, 42, 59, 74, 76, 81, 82, 199, 200, 202, and 214-216 stand rejected under 35 USC § 102(b) as being anticipated by U.S. Patent No. 6,457,524 to Roddy ("Roddy '524"). Claims 37 and 42 have been cancelled for reasons unrelated to the present rejection. As applied against the remaining claims, this rejection is respectfully traversed.

Roddy '524 discloses cement compositions and methods for their use. In exemplary cement compositions disclosed by Roddy '524, the cement compositions include a flow enhancing additive that is a particulate solid material having a flow inducing polar chemical absorbed thereon. The particulate solid material can be zeolite, in which case the zeolite carries the flow inducing polar chemical. (Col. 4, lines 36 – 43). If zeolite is used in the additive, then the ratio of the zeolite to the polar chemical absorbed thereon is from about 90:10 to about 10:90. (Col. 4, line 58). The additive is blended with cementitious material in an amount of from about 0.01% to about 1.0% by weight of the cementitious material. (Col. 4, lines 60-61). Thus, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. To the extent that the cementitious material can be considered to be the base blend of the cement composition described in Roddy '524, and to the extent that the amount of zeolite could be calculated as a percentage of the total weight of the base blend, then the amount of zeolite, expressed as a weight percent of the base blend, would be even less.

As provided in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim ...". Thus, Roddy '524 must disclose each and every element of claims 1, 2, 8, 9, 22, 23, 27, 28, 31, 36, 59, 74, 76, 81, 82, 199, 200, 202, and 214-216 to sustain the present rejection. Applicants respectfully submit that Roddy '524 does not disclose or suggest each and every element of independent claims 1 and 199, and that for at least this reason, the

rejection under 35 USC § 102(b) over Roddy '524 of claims 1, 74 and 199, and the claims dependent thereon, cannot be sustained.

1. Independent claim 1 and dependent claims 2, 8, 9, 22, 23, 27, 28, 31 and 36

Claim 1 is drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with a mixing fluid to form a cement composition, placing the cement composition into the subterranean zone, and allowing the cement composition to set therein. The base blend includes at least one cementitious material and at least about 20 weight percent zeolite.

As noted above, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. To the extent that the cementitious material can be considered to be the base blend of the cement composition described in Roddy '524, and to the extent that the amount of zeolite could be calculated as a percentage of the total weight of the base blend, then the amount of zeolite, expressed as a weight percent of the base blend, would be even less.

Roddy '524 does not disclose, suggest or motivate a method that includes mixing a base blend with a mixing fluid, wherein the base blend includes at least one cementitious material and at least about 20 weight percent zeolite. Accordingly, Roddy '524 fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 1, and Applicants respectfully request that the rejection of claim 1 under 35 USC § 102(b) over Roddy '524 be withdrawn.

Claims 2, 8, 9, 22, 23, 27, 28, 31 and 36 each depend directly or indirectly from claim 1, and therefore include all of the elements of claim 1. Thus, Applicants submit that the rejection of claims 2, 8, 9, 22, 23, 27, 28, 31 and 36 under 35 USC § 102(b) over Roddy '524 should be withdrawn for at least the same reasons that apply to claim 1. In addition, Applicants note that Roddy '524 fails to disclose, suggest or motivate a method that includes mixing a base blend with zeolite in the amounts recited in claims 8, 31 and 36.

In sum, Roddy '524 fails to disclose, suggest or motivate each and every element of claim 1, and the claims dependent thereon. Accordingly, the present rejection of claims 1, 2, 8, 9, 22, 23, 27, 28, 31 and 36 under 35 USC § 102(b) over Roddy '524 cannot be sustained.

2. Claim 59

Claim 59 depends from claim 58, which depends from claim 55. Thus, claim 59 includes all of the elements of claims 55 and 58, and is therefore drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes blending a cement mix comprising a cementitious base with an aqueous zeolite suspension to form a cement composition, placing the cement composition into the subterranean zone, and allowing the cement composition to set therein. The inclusion of the aqueous zeolite suspension in the cement composition causes the cement composition to have a zeolite content of at least about 30 weight percent of the weight of the cementitious base. The aqueous zeolite suspension is formed by mixing zeolite in an amount of from about 40 to about 50 weight percent with a mixing fluid.

As noted above, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. Roddy '524 is completely devoid of disclosure, suggestion or motivation of a method that includes mixing a cementitious base with an aqueous zeolite suspension. As Roddy '524 does not disclose, suggest or motivate mixing a cementitious base with an aqueous zeolite suspension, Roddy '524 cannot disclose, suggest or motivate (a) the inclusion of an aqueous zeolite suspension in a cement composition to cause the cement composition to have a zeolite content of at least about 30 weight percent of the weight of the cementitious base, or (b) that an aqueous zeolite suspension is formed by mixing zeolite in an amount of from about 40 to about 50 weight percent with a mixing fluid.

Because Roddy '524 fails to disclose, suggest or motivate each and every element of claim 59, Applicants respectfully request that the present rejection of claim 59 over Roddy '524 be withdrawn.

3. Independent claim 74 and dependent claims 76, 81 and 82

Claim 74 is an independent claim drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with a mixing fluid to form an unfoamed cement composition, foaming the unfoamed cement composition to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and



allowing the foamed cement composition to set therein. The base blend comprises at least one cementitious material and at least about 20 weight percent zeolite.

As noted above, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. Roddy '524 is completely devoid of disclosure, suggestion or motivation of a method that includes preparing a cement composition by mixing a base blend with a mixing fluid, foaming the cement composition and setting of the cement composition in a wellbore, wherein the base blend of the composition includes at least about 20 weight percent zeolite.

Thus, Roddy '524 fails to meet the standard set forth under MPEP §2131. Accordingly, Applicants respectfully request that the present rejection of claim 74 over Roddy '524 be withdrawn. Claims 76, 81 and 82 each depend directly or indirectly from claim 74, and therefore include at least the same elements as claim 74. Thus, Applicants submit that Roddy '524 cannot support the present rejection under 35 USC § 102(b) for at least the same reasons that apply to claim 74.

In view of the foregoing, Applicants respectfully request that the rejection of claims 74, 76, 81 and 82 under 35 USC § 102(b) over Roddy '524 be withdrawn.

4. Independent claim 199 and dependent claims 200-202

Claim 199 is drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend comprising at least one cementitious material with zeolite to form a cement mix, mixing the cement mix with a mixing fluid to form a cement composition, placing the cement composition into the subterranean zone, and allowing the cement composition to set therein. The amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend, and is selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite.

According to the method of claim 199, zeolite is present in the cement composition as an additive, rather than as a base component. Cement composition no. 2 reported in Table 6 of the specification is one example of a composition suitable for use in a method according to claim

199. Cement composition no. 2 reported in Table 6 has a base blend that is 100% class A cement. Zeolite is mixed with this base blend in an amount that is 5% of the total weight of the base blend.

As noted above, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. Roddy '524 does not disclose, suggest or motivate a method that includes mixing a base blend with zeolite in an amount that is at least 5 weight percent of the weight of the base blend. Roddy '524 also fails to disclose, suggest or motivate using a zeolite selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite.

As illustrated by the foregoing, Roddy '524 fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 199 and Applicants respectfully request that the rejection of claim 199 under 35 USC § 102(b) over Roddy '524 be withdrawn.

Claims 200-202 each depend directly or indirectly from claim 199, and therefore include all of the elements of claim 199. Thus, Applicants submit that the rejection of claims 200-202 under 35 USC § 102(b) over Roddy '524 should be withdrawn for at least the same reasons that apply to claim 199.

5. Independent claim 214 and dependent claims 215-216

Claim 214 is an independent claim drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with an aqueous zeolite suspension and a mixing fluid to form an unfoamed cement composition, foaming the unfoamed cement composition to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. The base blend comprises at least one cementitious material and the aqueous zeolite suspension comprises at least about 40 weight percent zeolite.

Roddy '524 is completely devoid of disclosure, suggestion or motivation of a method that includes mixing a base blend with an aqueous zeolite suspension. As Roddy '524 does not disclose, suggest or motivate mixing a base blend with an aqueous zeolite suspension, Roddy

'524 cannot disclose, suggest or motivate mixing a base blend with an aqueous zeolite suspension comprising at least about 40 weight percent zeolite. In fact, at best, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material.

As illustrated by the foregoing, Roddy '524 fails to meet the standard set forth in MPEP § 2131 for sustaining the present rejection of claim 214 and Applicants respectfully request that the rejection of claim 214 under 35 USC § 102(b) over Roddy '524 be withdrawn.

Claims 215-216 each depend directly or indirectly from claim 214, and therefore include all of the elements of claim 214. Thus, Applicants submit that the rejection of claims 215-216 under 35 USC § 102(b) over Roddy '524 should be withdrawn for at least the same reasons that apply to claim 214.

L. Rejection of Claims 3, 11, 12, 25 and 26 under 35 USC § 103(a)

Claims 3, 11, 12, 25 and 26 stand rejected under 35 USC § 103(a) as being unpatentable over Roddy '524. This rejection is respectfully traversed.

Roddy '524 discloses cement compositions and methods for their use. In exemplary cement compositions disclosed by Roddy '524, the cement compositions include a flow enhancing additive that is a particulate solid material having a flow inducing polar chemical absorbed thereon. The particulate solid material can be zeolite, in which case the zeolite carries the flow inducing polar chemical. (Col. 4, lines 36 – 43). If zeolite is used in the additive, then the ratio of the zeolite to the polar chemical absorbed thereon is from about 90:10 to about 10:90. (Col. 4, line 58). The additive is blended with cementitious material in an amount of from about 0.01% to about 1.0% by weight of the cementitious material. (Col. 4, lines 60-61). Thus, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. To the extent that the cementitious material can be considered to be the base blend of the cement composition described in Roddy '524, and to the extent that the amount of zeolite could be calculated as a percentage of the total weight of the base blend, then the amount of zeolite, expressed as a weight percent of the base blend, would be even less.

To sustain the present rejection of claims 3, 11, 12, 25 and 26 under 35 USC § 103(a), a prima facie case of obviousness must be established. MPEP § 2142 provides that a prima facie case of obviousness requires three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. In the present case, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to claims 3, 11, 12, 25 and 26.

Each of claims 3, 11, 12, 25 and 26 depends directly or indirectly from claim 1, and therefore each includes all of the elements of claim 1. As noted above with respect to the rejection of claim 1 under 35 USC § 102(b) over Roddy '524, Roddy '524 does not disclose, suggest or motivate all of the elements of claim 1. Thus, Roddy '524 fails to disclose, suggest or motivate all of the elements of claims 3, 11, 12, 25 and 26 for at least the same reasons that apply to claim 1. Accordingly, at least one of the required elements of the prima facie case has not been satisfied, and therefore the prima facie case must fail.

Roddy '524 also fails to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to arrive at the subject matter of claims 3, 11, 12, 25 and 26. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 3, 11, 12, 25 and 26.

With respect to claim 3, Applicants note that Official Notice has been taken for the allegation that the specific zeolites listed in claim 3 are conventional and well-known. Applicants traverse the Official Notice on the grounds that the conventionality and notoriety of the zeolites recited in claim 3 has not been demonstrated to be unquestionable, nor supported by documentary evidence pursuant to the guidelines set forth in MPEP § 2144.03. However, even assuming that the zeolites recited in claim 3 are well-known, it would not be an obvious matter of choice or design to select the zeolites recited in claim 3 for use in a cement composition. Furthermore, Roddy '524 fails to disclose, suggest or motivate the additional subject matter recited in claims 3, 11, 12, 25 and 26.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Roddy '524 has not and cannot be established with respect to claims 3, 11, 12, 25 and 26. Accordingly, Applicants respectfully request that the rejection of claims 3, 11, 12, 25 and 26 under 35 USC § 103(a) over Roddy '524 be withdrawn.

M. Rejection of Claims 10, 13-21, 29, 30, 38-41, 75, 76, 83 and 203  
under 35 USC § 103(a)

Claims 10, 13-21, 29, 30, 38-41, 75, 76, 83 and 203 stand rejected under 35 USC § 103(a) as being unpatentable over Roddy '524 in view of Boncan. This rejection is respectfully traversed. Claims 38-41 have been cancelled for reasons unrelated to the present rejection. As applied against the remaining claims, this rejection is respectfully traversed.

Roddy '524 discloses cement compositions and methods for their use. In exemplary cement compositions disclosed by Roddy '524, the cement compositions include a flow enhancing additive that is a particulate solid material having a flow inducing polar chemical absorbed thereon. The particulate solid material can be zeolite, in which case the zeolite carries the flow inducing polar chemical. (Col. 4, lines 36 – 43). If zeolite is used in the additive, then the ratio of the zeolite to the polar chemical absorbed thereon is from about 90:10 to about 10:90. (Col. 4, line 58). The additive is blended with cementitious material in an amount of from about 0.01% to about 1.0% by weight of the cementitious material. (Col. 4, lines 60-61). Thus, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. To the extent that the cementitious material can be considered to be the base blend of the cement composition described in Roddy '524, and to the extent that the amount of zeolite could be calculated as a percentage of the total weight of the base blend, then the amount of zeolite, expressed as a weight percent of the base blend, would be even less.

Boncan discloses aluminum silicate-containing cement slurries for cementing wellbores in deepwater and cold environments. (Abstract.) The slurries may also include additives such as quick-setting gypsum, polyvinyl alcohol-based anti-fluid flow additives and accelerators. The slurries may also be foamed. (Col. 2, line 66 – Col. 3, line 5). The aluminum silicates used in the compositions described by Boncan are kaolin, metakaolin, halloysite, dickite or nacrite.

(Col. 8, lines 65 – col. 9, lines 1-5). Kaolin, metakaolin, halloysite, dickite and nacrite are clays. (See attached definitions of aluminum silicate, kaolin, halloysite, dickite, and discussion of the clay mineral group.) Thus, recitation of “aluminum silicate” in Boncan does not refer to zeolite.

To sustain the present rejection of claims 10, 13-21, 29, 30, 75, 76, 83 and 203 under 35 USC § 103(a) over Roddy ‘524 in view of Boncan, a prima facie case of obviousness must be established. In the present case, however, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to any of these claims.

1. Claims 10, 13-21, 29 and 30

Each of claims 10, 13-21, 29 and 30 depends directly or indirectly from claim 1, and therefore each includes all of the elements of claim 1. Each of claims 10, 13-21, 29 and 30 further describes use of a particular additive in the composition described in claim 1. Thus, each of claims 10, 13-21, 29 and 30 describes a method that includes mixing a base blend with a mixing fluid to form a cement composition. The base blend includes at least one cementitious material and at least about 20 weight percent zeolite. The composition further includes the particular additive(s) recited in claims 10, 13-21, 29 and 30.

As noted above with respect to the rejection of claim 1 under 35 USC § 102(b) over Roddy ‘524, Roddy ‘524 does not disclose, suggest or motivate a method that includes mixing a base blend with a mixing fluid, wherein the base blend includes at least one cementitious material and at least about 20 weight percent zeolite. Roddy ‘524 also fails to disclose, suggest or motivate including additives such as those recited in claims 10, 13-21, 29 and 30 in a cement composition as described in claim 1.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roddy ‘524. As discussed above, Boncan discloses cement slurries that include certain aluminum silicate clays, namely, kaolin, metakaolin, halloysite, dickite and nacrite. Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes the use of flow and accelerating additives, there is no disclosure, suggestion, motivation, or even an expectation, that these additives would work in the presence of zeolite.

Thus, as neither Roddy '524 nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of each of claims 10, 13-21, 29 and 30, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roddy '524 and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claims 10, 13-21, 29 and 30. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 10, 13-21, 29 and 30.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Roddy '524 in view of Boncan has not and cannot be established with respect to claims 10, 13-21, 29, and 30. Accordingly, Applicants respectfully request that the rejection of claims 10, 13-21, 29 and 30 under 35 USC § 103(a) over Roddy '524 and Boncan be withdrawn.

## 2. Claims 75, 76 and 83

Each of claims 75, 76 and 83 depend directly or indirectly from claim 74, and therefore include all of the elements of claim 74.

Claim 74 is an independent claim drawn to a method of sealing a subterranean zone penetrated by a wellbore. The method includes mixing a base blend with a mixing fluid to form an unfoamed cement composition, foaming the unfoamed cement composition to form a foamed cement composition, placing the foamed cement composition into the subterranean zone, and allowing the foamed cement composition to set therein. The base blend comprises at least one cementitious material and at least about 20 weight percent zeolite.

As noted above, a cement composition that includes the additive described in Roddy '524 will include zeolite in an amount of less than 1.0% by weight of the cementitious material. Roddy '524 is completely devoid of disclosure, suggestion or motivation of a method that includes mixing a base blend with a mixing fluid, foaming the cement composition and setting of the cement composition in a wellbore, wherein the base blend of the composition includes at least about 20 weight percent zeolite. Roddy also fails to disclose, suggest or motivate the additional subject matter recited in each of claims 75, 76 and 83.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roddy '524. As discussed above, Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes foamed cement slurries, there is no disclosure, suggestion, motivation, or even an expectation, that slurries containing zeolite could be foamed.

Thus, as neither Roddy '524 nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claims 75, 76 and 83, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roddy '524 and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claims 75, 76 and 83. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claims 75, 76 and 83.

In view of the foregoing, Applicants respectfully request that the rejection of claims 75, 76 and 83 under 35 USC § 103(a) over Roddy '524 and Boncan be withdrawn.

### 3. Claim 203

Claim 203 depends directly from claim 199, and therefore includes all of the elements of claim 199. Claim 203 further describes mixing a dispersant with the base blend and zeolite described in claim 199. Thus, claim 199 describes a method that includes mixing a base blend, zeolite and a dispersant, and mixing that mixture with a mixing fluid to form a cement composition, where the amount of zeolite mixed with the base blend is at least about 5 weight percent of the weight of the base blend, and the zeolite is selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite.

As noted above with respect to the rejection of claim 199 under 35 USC § 102(b) over Roddy '524, Roddy '524 does not disclose, suggest or motivate a method that includes mixing a base blend with zeolite in an amount that is at least 5 weight percent of the weight of the base



blend. Roddy '524 also fails to disclose, suggest or motivate using a zeolite selected from the group consisting of analcime, bikitaite, brewsterite, chabazite, clinoptilolite, faujasite, harmotome, heulandite, laumontite, mesolite, natrolite, paulingite, phillipsite, scolecite, stellerite, stilbite, and thomsonite. Roddy '524 also fails to disclose, suggest or motivate mixing a base blend, zeolite and a dispersant as recited in claim 203.

Boncan does not provide the disclosure, suggestion or motivation that is lacking in Roddy '524. As discussed above, Boncan discloses cement slurries that include certain aluminum silicate clays, namely, kaolin, metakaolin, halloysite, dickite and nacrite. Boncan is completely devoid of disclosure, suggestion or motivation of the use of zeolite in a cementing composition. Further, although Boncan describes the use of flow and accelerating additives, there is no disclosure, suggestion or motivation of a dispersant, and further, there is no disclosure, suggestion or motivation, or even an expectation, that a dispersant would work in the presence of zeolite.

Thus, as neither Roddy '524 nor Boncan, alone or in combination, discloses, suggests or motivates all of the elements of claim 203, at least one of the elements of a prima facie case has not been satisfied. Accordingly, the prima facie case must fail.

Roddy '524 and Boncan also fail to satisfy the remaining elements of the prima facie case. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references to arrive at the subject matter of claim 203. Further, even if such modification were possible, there could be no reasonable expectation of success that the result would be the subject matter of claim 203.

In view of the foregoing, Applicants submit that a prima facie case of obviousness over Roddy '524 in view of Boncan has not and cannot be established with respect to claim 203. Accordingly, Applicants respectfully request that the rejection of claim 203 under 35 USC § 103(a) over Roddy '524 and Boncan be withdrawn.

N. Rejection of Claims 200 and 215 under 35 USC § 102(b)

Claims 200 and 215 stand rejected under 35 USC § 102(b) over Boncan or U.S. Patent No. 6,235,809 to Arias et al. ("Arias"). This rejection is respectfully traversed.

As provided in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim ...". Thus, Boncan or Arias must disclose each and every element of claims 200 and 215 to sustain the present rejection. Applicants respectfully submit that neither Boncan nor Arias discloses, suggests or motivates each and every element of claims 200 and 215.

Claim 200 depends from claim 199, and therefore includes all of the elements of claim 199. The method of claim 199 includes mixing a base blend with zeolite. The base blend comprises at least one cementitious material. Claim 200 further requires that the base blend is 100 weight percent cementitious material, which therefore excludes any components that are not cementitious materials from being a part of the base blend. Thus, according to claim 200, a base blend that is made up of only cementitious material is mixed with zeolite.

Claim 215 depends from claim 214, and therefore includes all of the elements of claim 214. The method of claim 214 includes mixing a base blend with an aqueous zeolite suspension. The base blend comprises at least one cementitious material, and the zeolite suspension comprises at least about 40 weight percent zeolite. Claim 215 further requires that the base blend is 100 weight percent cementitious material, which therefore excludes any components that are not cementitious materials from being a part of the base blend. Thus, according to claim 215, a base blend that is made up of only cementitious material is mixed with an aqueous zeolite suspension.

Boncan discloses aluminum silicate-containing cement slurries for cementing wellbores in deepwater and cold environments. (Abstract.) The aluminum silicates used in the compositions described by Boncan are kaolin, metakaolin, halloysite, dickite or nacrite. (Col. 8, lines 65 – col. 9, lines 1-5). Kaolin, metakaolin, halloysite, dickite and nacrite are clays. (See attached definitions of aluminum silicate, kaolin, halloysite, dickite, and discussion of the clay mineral group.) Thus, recitation of "aluminum silicate" in Boncan does not refer to zeolite.

Arias discloses a cement composition that includes cement, a sodium silicate additive, water, a carrageenan suspending agent, a sodium polyacrylate, an AMPS terpolymer, a dispersant and a cellulosic water soluble polymer. There is no disclosure, suggestion or motivation of inclusion of zeolite in the composition.

The present Office Action appears to agree that neither Boncan nor Arias discloses, suggests or motivates the inclusion of zeolite in a composition used in cementing operations.

(See page 18, which states that “Boncan et al and Arias et al disclos[e] processes of cementing a well wherein zeolite is not included in the cementing slurry”.

In view of the apparent agreement in the present Office Action that neither Boncan nor Arias discloses, suggests or motivates the inclusion of zeolite in compositions used in cementing operations, Applicants respectfully submit that the rejection of claims 200 and 215 under 35 USC 102(b) is improper and should be withdrawn.

O. Applications Cross-Referenced to this Application

Applicants hereby inform the Examiner of the following U.S. patent applications that are cross-referenced to the present application and are now pending in the U.S. Patent and Trademark Office:

Application No.	Publication No.	Filing Date	Status
10/315,415	2004/0107877	12/10/02	Examined.
10/623,443	2004/0108113	07/18/03	Not yet examined.
10/727,370	not available	12/04/03	Not yet examined.
10/738,199	2004/0188091	12/17/03	Not yet examined.
10/795,158	2005/0000734	03/05/04	Not yet examined.
10/816,034	2004/0244977	04/01/04	Not yet examined.
10/822,459	2004/0188092	04/12/04	Not yet examined.

Copies of any published applications and office actions issued in connection with those applications that have been examined are submitted with the Supplemental Information Disclosure Statement accompanying this Response.

P. Other Applications

Applicants hereby inform the Examiner of the following U.S. patent applications, which have been filed by one or more of the Applicants, and which describe the use of zeolite in cementing compositions and operations:

Application No.	Filing Date	Status
10/901,507	07/28/04	Not yet examined.
10/939,902	09/13/04	Not yet examined.
10/954,116	09/29/04	Not yet examined.

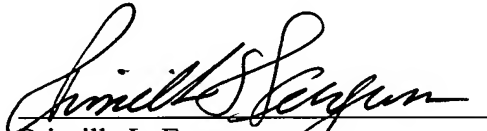
Copies of any published applications and office actions issued in connection with those applications that have been examined are submitted with the Supplemental Information Disclosure Statement accompanying this Response.

**Conclusion**

Claims 1-36, 55-84, 199-203, 214-216 and 221-225 are now pending in the present application. In view of the foregoing remarks, allowance of claims 1-36, 55-84, 199-203, 214-216 and 221-225 is respectfully requested. The examiner is invited to call the undersigned at the below-listed telephone number if, in the opinion of the examiner, such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,

Date: Feb. 18, 2005

  
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Dictionary**alu'minum sil'icate**

any of a group of naturally occurring, water-insoluble substances, obtained from clay or synthesized, containing varying amounts of oxides of aluminum and silicon,  $\text{Al}_2\text{O}_3$  and  $\text{Si}_2\text{O}_3$ , and used in the manufacture of glass, ceramics, paints, printing inks, rubber, and plastics. Cf. **mullite**.

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aluminum oxidealuminum soap

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**Dictionary****ka•o•lin***Pronunciation:* (kā'u-lin), [key]—*n.*a fine white clay used in the manufacture of porcelain. Also, **ka'o•line**.*Random House Unabridged Dictionary*, Copyright © 1997, by Random House, Inc., on Infoplease

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**See synonyms for kaolin****See encyclopedia article for kaolin**

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kaoliangkaolinite

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Dictionary

hal•loy•site

*Pronunciation:* (hu-loi'sīt, -zīt, ha-), [key]

—*n.*

a refractory clay mineral similar in composition to kaolinite.

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Hallowmas



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Dictionary**dick•ite***Pronunciation:* (dik'tīt), [key]*—n. Mineral.**a polymorph of kaolinite.*

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DickinsonDickson

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## THE CLAY MINERAL GROUP

The clay minerals are a part of a general but important group within the **phyllosilicates** that contain large percentages of water trapped between the silicate sheets. Most clays are chemically and structurally analogous to other phyllosilicates but contain varying amounts of water and allow more substitution of their cations. There are many important uses and considerations of clay minerals. They are used in manufacturing, drilling, construction and paper production. They have great importance to crop production as clays are a significant component of soils.

It is the physical characteristics of clays that more so than the chemical and structural characteristics define this group:

- Clay minerals tend to form microscopic to sub microscopic crystals.
- They can absorb water or lose water from simple humidity changes.
- When mixed with limited amounts of water, clays become plastic and are able to be molded and formed in ways that most people are familiar with as children's clay.
- When water is absorbed, clays will often expand as the water fills the spaces between the stacked silicate layers.
- Due to the absorption of water, the specific gravity of clays is highly variable and is lowered with increased water content.
- The hardness of clays is difficult to determine due to the microscopic nature of the crystals, but actual hardness is usually between 2 - 3 and many clays give a hardness of 1 in field tests.
- Clays tend to form from weathering and secondary sedimentary processes with only a few examples of clays forming in primary igneous or metamorphic environments.
- Clays are rarely found separately and are usually mixed not only with other clays but with microscopic crystals of **carbonates**, **feldspars**, **micas** and **quartz**.

Clay minerals are divided into four major groups. These are the important clay mineral groups:

### The Kaolinite Group

This group has three members (**kaolinite**, **dickite** and **nacrite**) and a formula of  $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ . The different minerals are polymorphs, meaning that they have the same chemistry but different structures (polymorph = many forms). The general structure of the kaolinite group is composed of silicate sheets ( $\text{Si}_2\text{O}_5$ ) bonded to aluminum oxide/hydroxide layers ( $\text{Al}_2(\text{OH})_4$ ) called **gibbsite** layers. The silicate and gibbsite layers are tightly bonded together with only weak bonding existing between the s-g paired layers.

**Uses:** In ceramics, as a filler for paint, rubber and plastics and the largest use is in the paper industry that uses kaolinite to produce a glossy paper such as is used in most magazines.

### The Montmorillonite/Smectite Group

This group is composed of several minerals including **pyrophyllite**, **talc**, **vermiculite**, **sauconite**, **saponite**, **nontronite** and **montmorillonite**. They differ mostly in chemical content. The general formula is  $(\text{Ca}, \text{Na}, \text{H})(\text{Al}, \text{Mg}, \text{Fe}, \text{Zn})_2(\text{Si}, \text{Al})_4\text{O}_{10}(\text{OH})_2 \cdot x\text{H}_2\text{O}$ , where x represents the variable amount of water that members of this group could contain. Talc's formula, for example, is

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